

## Sample Questions

Don't use calculators.

1. A tutorial group has 7 members, of whom 4 are female and 3 are male. Each day the members all volunteer to clean the blackboard/whiteboard for the tutor, and one of them is selected at random to do the job.
  - (a) What is the probability that on any given day a particular person will be selected?
  - (b) What is the probability that on any given day the person selected will be male?
  - (c) What is the probability of a particular person being selected two days in a row?
  - (d) What is the probability that the people selected on two successive days will be of the same gender?
2. A die is thrown once.
  - (a) What is the probability that the score is greater than 4?
  - (b) What is the probability that the score is greater than 4 or less than 2?
3. Two dice are thrown.
  - (a) What is the probability that 6 occurs both times?
  - (b) What is the probability that the same score occurs both times?
  - (c) What is the probability that the two scores are different?
  - (d) What is the probability that the two scores differ by exactly 3?
  - (e) What is the probability that the sum of the two scores is 8?
  - (f) What is the probability that the sum of the two scores is an odd number?
  - (g) Given that the scores are the same, what is the (conditional) probability that they are both 5?
  - (h) Given that the scores are different, what is the probability that they differ by 2 or more?
  - (i) Given that the scores are both odd, what is the probability that they differ by 2 or more?
  - (j) Given that the scores differ by 2 or more, what is the probability that they are both odd?
  - (k) Are the two outcomes "differing by 2 or more" and "both being odd" dependent or independent?
4. A die is cast and a coin is thrown.
  - (a) What is the probability that the scores are 4 and H?
  - (b) What is the probability of a 4 on the die or a H on the coin?
  - (c) Prove that the two outcomes (4 and H) are independent.